**CPP程式設計題**

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| **Subject: 謝公耀, 張子樂, 林岳儒** |
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| **Main testing concept: templates**   |  |  | | --- | --- | | **Basics** | **Functions** | | □ C++ BASICS  □ FLOW OF CONTROL  □ FUNCTION BASICS  □ PARAMETERS AND OVERLOADING  □ ARRAYS  □ STRUCTURES AND CLASSES  □ CONSTRUCTORS AND OTHER TOOLS  □ OPERATOR OVERLOADING, FRIENDS,AND REFERENCES  □ STRINGS  □ POINTERS AND DYNAMIC ARRAYS | □ SEPARATE COMPILATION AND NAMESPACES  □ STREAMS AND FILE I/O  □ RECURSION  □ INHERITANCE  □ POLYMORPHISM AND VIRTUAL FUNCTIONS  ■ TEMPLATES  □ LINKED DATA STRUCTURES  □ EXCEPTION HANDLING  □ STANDARD TEMPLATE LIBRARY  □ PATTERNS AND UML | |
| **Description:**  Please write a template-based function that calculates and returns the absolute value of the difference between two numeric values passed with Template.h.  Note that the function should operate with any numeric data type (e.g. float, int, double, char).    **Input:**  No inputs.  \*\*The main() function in your submission will be replaced when judging.  \*\*You can use the main() function in “Other Notes” to test your program.  **Output:**  The result of executing your program with the given main function.  **Sample Input / Output:**   |  |  | | --- | --- | | Sample Input | Sample Output | | No inputs | Absolute value of 10 - 20 is 10  Absolute value of 5.5 - 3.1 is 2.4  Absolute value of A - C is 2 | |
| **■ Easy, only basic programming syntax and structure are required.**  **□ Medium, multiple programming grammars and structures are required.**  **□ Hard, need to use multiple program structures or complex data types.** |
| **Expected solving time:**  10 minutes |
| **Other notes:**  #include "Template.h"  #include <iostream>  using namespace std;  int main()  {  int i1, i2;  double d1, d2;  char c1, c2;  i1 = 10; i2 = 20;  cout << "Absolute value of 10 - 20 is " << absoluteValue(i1, i2) << endl;  d1 = 5.5; d2 = 3.1;  cout << "Absolute value of 5.5 - 3.1 is " << absoluteValue(d1, d2) << endl;  c1 = 'A', c2 = 'C';  cout << "Absolute value of A - C is " << absoluteValue(c1, c2) << endl;  return 0;  } |